Abstract No. jone0514

Elemental Distributions for NY/NJ Harbor Sediments

K. Jones (BNL), H. Feng (Montclair State U.) and A. Lanzirotti (U. of Chicago)

Beamline(s): X26A

Sediments in the New York/New Jersey Harbor contain elements which are of both natural and anthropogenic origin. The spatial distributions are of interest in searching for associations between elements and in ascertaining the degree of spatial variation in the concentrations. One particular association of importance is the possible correlation of S with other metals. The National Institute of Standards and Technology Standard Reference Material 1944, New York/New Jersey Waterways Sediments, is a useful material for use in investigation of the spatial variability. This standard is composed of materials taken from the surface sediments at 6 representative locations in the NY/NJ Harbor. We used the X26A x-ray microprobe to map elemental distributions over a number of these grains that were deposited on a 0.0075-mm polyimide film. The spatial resolution was about 0.010 mm x 0.015 mm. Maps were made with pixel sizes of about 0.015 mm and x-ray energy of 16 KeV. Results obtained for 4 elements are shown in Figure 1. Note that there were only a few high concentration areas observed and that there are no obvious correlations with the concentration of S. Further work is planned to investigate metal concentrations on the particle surfaces and on associated organic deposits. The information will be useful for consideration of contaminant transport mechanisms and for devising technologies for dredged material decontamination.

Acknowledgments: Work supported in part by the US Department of Energy under Contract No. DE-AC02-98CH10886 and the US Environmental Protection Agency Region 2 under Interagency Agreement No. DW89941761-01 with the US Department of Energy.

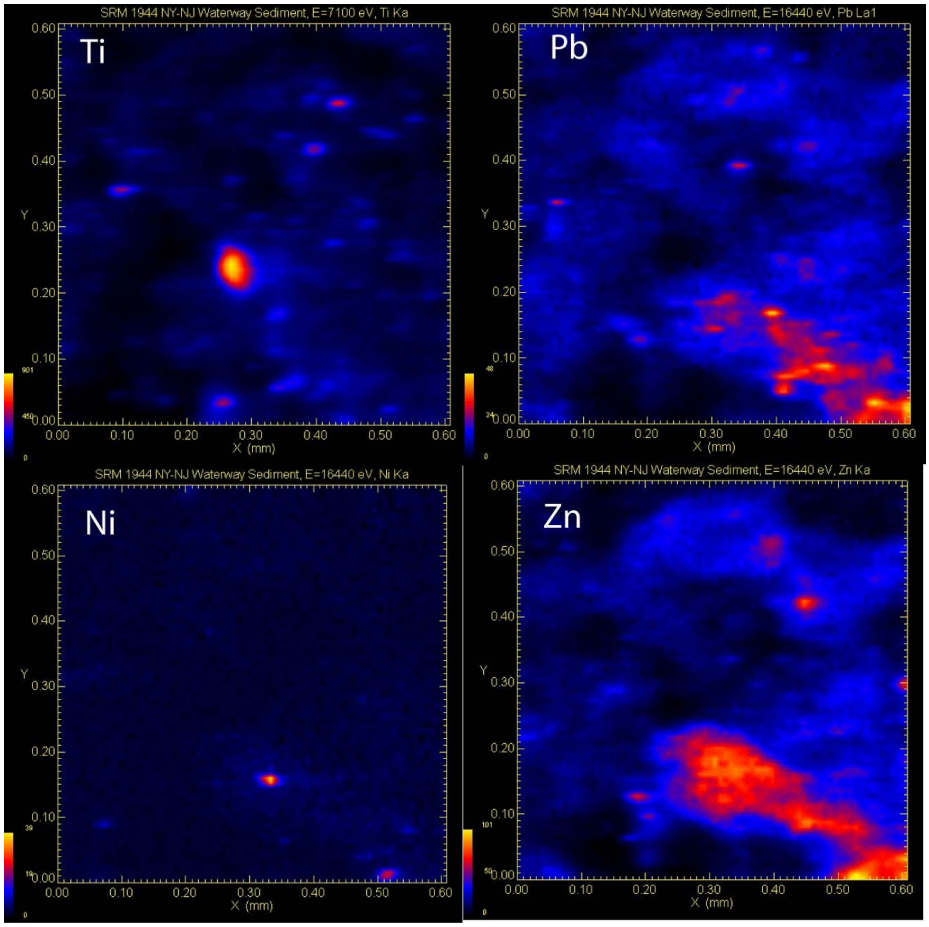

Figure 1. Maps of the spatial concentrations of 4 elements are shown.